**Student Expectation**

The student is expected to interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements.

**Fundamental Questions**

* How are the physical and chemical properties of atoms represented on the Periodic Table of Elements? The periodic table is organized so that the vertical columns, also called families or groups, contain elements that have the same number of valence electrons. Valence electrons determine the chemical properties, such as reactivity.

The periodic table is also divided into metals, metalloids, and nonmetals. Metals have similar physical properties, such as the tendency to be solid at room temperature, shiny, malleable, and good conductors of heat and electricity. Non-metals are typically not shiny, not good conductors of heat or electricity, and either gaseous or brittle solids.

Metalloids have some characteristics of metals and some of non-metals.

* How are elements arranged in the Periodic Table of Elements?

Elements increase in atomic number and mass as you move across to the right and down the periodic table.

* How can the Periodic Table of Elements be used to compare the atomic mass of different elements?

The periodic table contains the atomic mass of each element.

* What do the columns on the Periodic Table of Elements represent?

The columns represent groups or families that contain the same number of valence electrons.

* What do the rows on the Periodic Table of Elements represent?

The rows represent families that contain the same number of electrons shells.